



Putting the Breaks on the Anthracnose Epidemic

Rerearchers Offer New Hope for Preventing an Anthracnose Outbreak on Your Course

Adopted from an article written by Dr. Bruce Clark and Dr. James Murphy Rutgers Cooperative Extension

Anthracnose has to be one of the most dreaded—and deadly—turfgrass diseases to affect golf courses—and golf course superintendents. Few know that better than the superintendents along the East Coast and mid-western states where, over the past few years, this disease has soared in incidence and severity—and has been extremely difficult to control.

Fungicides normally used to control the disease were frequently ineffective, even when used at labeled rates and at recommended intervals of application. The result: Many golf courses suffered extensive damage and major disruptions in play, particularly on greens.

This left superintendents scratching their heads, while agronomists and pathologists searched for some answers. Though it's doubtful that any particular factor is responsible for the recent increase in anthracnose in the U.S., the researchers do agree that certain management practices commonly employed on golf courses may be enhancing the severity of this disease and making it more difficult to control.

What follows is a look at how the disease evolves, as well as how various management practices may be setting the stage for anthracnose. Last but not least, the researchers offer some helpful hints on what you might do to prevent an anthracnose outbreak on your course.



Fig 1. Yellowing and general thinning associated with early symptoms of anthracnose on *Poa annua*.

Telltale Symptoms and Signs of Anthracnose

At its onset, anthracnose—caused by *Colletotrichum graminicola*—seems harmless enough: small patches of yellow to reddishbrown turf just one to two inches in diameter (see Figure 1). But give it the right conditions and this insidious killer takes off, rapidly becoming large, irregularly shaped areas of discolored turf. The pathogen may first infect older or senescing leaves, causing yellow leaf lesions (see Figure 2). But at the slightest hint of mechanical or environmental stress, the pathogen dives deep, attacking the weakened plants' stems and leaf sheaths. Causing an affliction commonly known as basal stem rot, the lesions on the stems and leaf sheaths are, at first, water soaked but quickly turn black as the tissue is destroyed.

At this point, the plant's death is almost certain. But unfortunately, the disease lives on and can be unwittingly—and quite easily—spread.

Here's how it works: If you were to look at the affected foliage and stems, you'd generally see, at this stage, that they're covered with small, black protrusions or reproductive structures called acervuli.

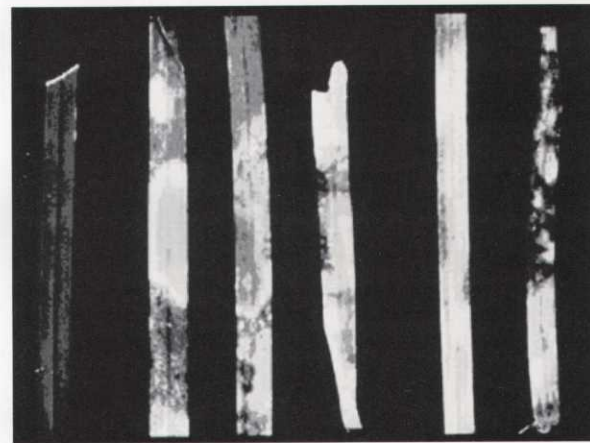


Fig 2. Leaf spots caused by *Colletotrichum graminicola* on *Poa annua*.

As the acervuli mature, they produce long, black spines called setae, which are the telltale signs of anthracnose (see Figure 3). Each acervuli contains dozens of one-celled, crescent-shaped, asexual spores called conidia. It's the conidia that spread the disease to uninfected turf when moved by wind, water, or unavoidable mechanical means.

Unfortunately, this disease can strike almost any time of year, but it most commonly makes an appearance between April and September. It's not picky about which turfgrass species it infects, but it is particularly severe on annual bluegrass (*Poa annua* L.) and a little less so on creeping bentgrass (*Agrostis stolonifera* L.).

Annual bluegrass is generally hardest hit because it's the weaker of the two turfgrasses with a prolific production of seed heads, particularly between late April and early June.

Aside from being undesirable to golfers, these seed heads are often the culprit in anthracnose infections—primarily because they often deplete the essential carbohydrate reserves of the plant by early summer. This weakens the plant and, ultimately, its defenses against anthracnose, particularly if there are environmental stresses, such as hot, humid weather.

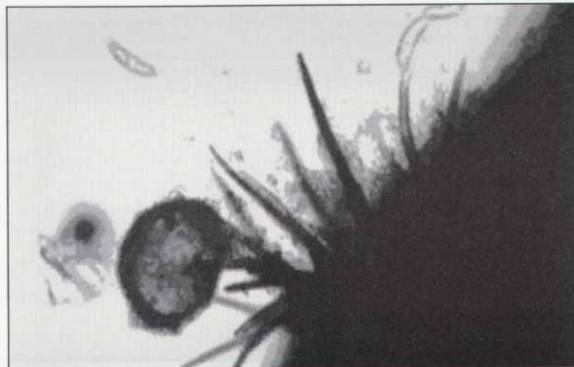


Fig 3. An acervulus with black setae and one-celled conidia produced by the anthracnose pathogen, *Colletotrichum graminicola*.

For best results, do not apply more than two or three consecutive applications of any fungicide used to control anthracnose.